

CLAIMS

1. A method for screening for compounds that affect uncoupling, comprising:
 - (a) contacting a mammalian cell or tissue sample with a candidate compound; and
 - (b) analyzing the expression of human OGC within the sample.
2. The method of claim 1 further comprising the step of analyzing mitochondrial membrane potential in the cell.
3. A method of detecting a human OGC variant having uncoupling activity comprising:
 - (a) contacting a cell with a nucleic acid encoding human OGC variant suspected of having uncoupling activity, wherein the human OGC variant is subsequently expressed in the cell; and
 - (b) analyzing the mitochondrial membrane potential in the cell.
4. A method of modulating the metabolic rate in a mammal, comprising the step of up-regulating or down-regulating human OGC uncoupling activity in the mammal.
5. The method of claim 4, wherein the up-regulation of human OGC uncoupling activity stimulates an increase in metabolic rate in the mammal.
6. The method of claim 5, wherein the mammal is obese.
7. The method of claim 4 comprising administering a composition that increases human OGC expression in at least one cell in the mammal.
8. The method of claim 7, wherein the composition comprises a nucleic acid encoding human OGC.
9. The method of claim 5, wherein the composition comprises a human OGC agonist.

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10. The method of claim 4, wherein the down-regulation of human OGC uncoupling activity stimulates a decrease in metabolic rate in the mammal.
11. The method of claim 10 comprising administering a composition that decreases human OGC expression in at least one cell in the mammal.
- 5 12. The method of claim 10, wherein the composition comprises a human OGC antagonist.
13. A method of modulating metabolism by administering an inhibitor or human OGC to a mammal in need thereof.
14. The method of claim 13, wherein the mammal has cachexia.
15. The method of claim 13, wherein the inhibitor comprises a human OGC antagonist.
16. A method of decreasing the mitochondrial membrane potential in a cell, comprising contacting the cell with a nucleic acid encoding human OGC, wherein the nucleic acid expresses human OGC thereby decreasing the mitochondrial membrane potential in the cell.
- 15 17. The method of claim 16, wherein the cell is a mammalian cell.
18. The method of claim 17, wherein the cell is a human cell.
19. The method of claim 16, wherein the cell is contacted in vitro.
20. The method of claim 16, wherein the cell is contacted in vivo.
- 20 21. A method of decreasing the mitochondrial membrane potential in a cell, comprising contacting the cell with a composition that increases expression of human OGC, wherein the increased expression of human OGC thereby decreases the mitochondrial membrane potential in the cell.

22. The method of claim 21, wherein the composition comprises a nucleic acid encoding human OGC.
23. The method of claim 21, wherein the cell is a mammalian cell.
24. The method of claim 23, wherein the cell is a human cell.
- 5 25. The method of claim 21, wherein the cell is contacted in vitro.
26. The method of claim 21, wherein the cell is contacted in vivo.

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